

XI. *Descriptions of Aculeate Hymenoptera from Australia.*
By FREDERICK SMITH, late Pres. Ent. Soc.

[Read 4th May, 1868.]

Of the fifty-five species of Aculeate *Hymenoptera* described in this paper, not less than thirty have been received from Mr. H. Du Boulay, who discovered them at and in the neighbourhood of Champion Bay, in Western Australia. Amongst them, are three species of the genus *Crabro*, not one I believe having been described previously from that country. Of the rare genus *Paragia*, four new species are added, and several fine additions are made to the *Thynnidae*.

The principal discoveries of *Apidæ* are a fine metallic coloured species of the genus *Stenotritus*; one species of *Lithurgus*, and six of *Megachile*. The last-mentioned genus is well represented in Australia, since at least thirty species are known; in all other countries where these leaf-cutting bees are found, so also is their parasite *Cælioxyis*; but not a single species of that genus has, to my knowledge, been found in Australia. Probably some other genus of bees is the parasite of *Megachile* in that country, though I am not acquainted with any parasitic bee at all likely to be so; if *Cælioxyis* is an Australian insect, it is certainly remarkable that no one should have hitherto captured it.

The species not indicated as being in the National Collection are in my own cabinet.

Fam. THYNNIDÆ.

Gen. THYNNUS.

1. *Thynnus ochrocephalus*.

Male. Length 11 lines. The head, prothorax, and anterior legs, bright ochraceous, body and legs black. The antennæ, tips of the mandibles, and a transverse band on the vertex, enclosing the stemmata, black. Thorax punctured, the metathorax and legs with a fine short cinereous pubescence; the anterior tarsi black; wings sub-hyaline and ferruginous, their base brown, with the extreme base black, their apical margins with a broad

fuscous border extending to the base of the marginal cell. Abdomen finely punctured, and having, in certain lights, tints of blue; thinly covered above with cinereous downy pile.

Hab. Champion Bay.

In the British Museum.

I have only seen two specimens of this fine addition to the genus, one of which is in my own possession, presented to me by Mr. H. Du Boulay.

2. *Thynnus campanularis*.

Male. Length 1 inch. Black: spotted and banded with pale yellow markings. Head: the clypeus, a V-shaped mark between the antennæ, the mandibles and orbits of the eyes interrupted at their summit, yellow; the cheeks with long thin cinereous pubescence, a similar short thin pubescence on the vertex. Thorax: an interrupted line on the collar, two spots beneath the wings, the coxæ beneath, the metathorax with a reversed bell-shaped spot in the middle extending its entire length, the post-scutellum, two minute spots on the scutellum and a spot on the tegulæ, yellow; wings hyaline, nervures black. Abdomen: elongate, each segment with an interrupted fascia in the middle, the fasciæ narrow, and slightly curved upwards at the lateral margins; beneath, the segments have an ovate spot on each side, those on the second segment large and united, almost occupying the entire segment; the first segment with a central triangular spot.

Hab. Sydney.

3. *Thynnus oblongus*.

Male. Length $10\frac{1}{2}$ lines. Black. Head: the clypeus and mandibles yellow, the latter bidentate, and black at their apex; a narrow red obscure line behind the eyes. Thorax: rugose; the disk with a short brown pubescence; beneath, the sides and the metathorax with a cinereous pubescence; tibiæ and tarsi ferruginous, the apical joints of the latter black; wings fulvo-hyaline, the nervures fuscous. Abdomen elongate, finely punctured, the basal margins of the segments smooth and shining,

the other portion with a thin covering of cinereous pubescence, which is more dense and glittering at the sides; beneath punctured, and with a thin short cinereous pubescence.

Hab. Melbourne.

4. *Thynnus conspicuus*.

Male. Length 8-9 lines. Black: with red and yellow markings. Head: rugose; the clypeus, a spot at the base of the mandibles, the margin of the elevation beneath which the antennæ are inserted, and a narrow yellow line behind the eyes at the lower part of their orbits, yellow. Thorax: rugose, and with a thin hoary pubescence; the prothorax above, and a quadrate spot on the mesothorax, ferruginous; a black macula on each side of the prothorax, and a minute spot on the margin in front; a spot on the scutellum, the post-scutellum, and two ovate spots on the metathorax, yellow; the tips of the joints of the legs and of the tarsi, ferruginous; wings hyaline, with a slight yellow tinge. Abdomen smooth and shining; the first segment with a minute spot on each side, and the four following segments, with an interrupted yellow fascia in the middle, each narrower than the preceding; beneath, the second, third, and fourth segments have an interrupted white fascia.

Hab. South Australia.

In the British Museum.

5. *Thynnus impetuosus*.

Male. Length 1 inch. Black: the abdomen with silvery-white fasciæ. Head as wide as the thorax, and shining; the anterior margin of the clypeus, the mandibles, and a V-shaped mark above the insertion of the antennæ, yellow; the upper portion of the clypeus and tips of the mandibles ferruginous; the face and cheeks with silvery-white pubescence. Thorax: above, slightly shining, the scutellum roughly punctured, the metathorax clothed with long white pubescence, and transversely rugose; wings fusco-hyaline, with a darker fuscous stain traversing the nervures, which are black; the thorax with

a shortish hoary pubescence. Abdomen shining; the apical margins of the segments with a narrow fringe of silvery pubescence, the abdomen not truncate at the base, but, as well as at the apex, pointed.

Hab. South Australia (Hunter River?).

In the British Museum.

6. *Thynnus audax*.

Male. Length 1 inch. Head and thorax black, abdomen ferruginous, the insect adorned with yellow markings. Head and thorax with a golden yellow pubescence; the clypeus, cheeks, mandibles, and orbits of the eyes, yellow. Thorax: the prothorax, scutellum, post-scutellum, metathorax, the tegulæ, and two oblique lines on the mesothorax, yellow; the legs ferruginous; wings fulvo-hyaline, nervures ferruginous towards the apex of the wings, but becoming fuscous towards their base. Abdomen: ferruginous, with an ill-defined ovate spot on each side of each segment, the spots pale ferruginous, irregularly bordered with a narrow yellow line; the basal segment has on each side a small black ovate spot, and also a short line near its apical margin; beneath, mottled with yellow.

Hab. Australia.

In the British Museum.

7. *Thynnus seductor*.

Male. Length $9\frac{1}{2}$ lines. Head and thorax black, the abdomen yellow with black fascia. Head: the clypeus and mandibles bright yellow, the latter black at their tips; the antennæ as long as the thorax. The thorax roughly punctured; beneath, at the sides, and also the metathorax, thickly clothed with long cinereous pubescence; the anterior margin of the thorax raised, the margin slightly incurved; the wings fuscous, the nervures black. Abdomen: about the same length as the head and thorax; yellow, with the apical margins of the segments bordered with a narrow black band, each band runs into a small black notch in the middle, between which and the lateral margins, on each side, it is abruptly widened, and again abruptly narrowed, thus forming an oblong broader mar-

gin; two or three of the apical segments have a narrow black band on their basal margin also; the apical segment is longitudinally striated; beneath, the apical margins are fusco-ferruginous; the terminal segment with a broad lanceolate spine, which has at its base an acute angular process on each side; each band runs into a notch in the middle.

Hab. Champion Bay.

In the British Museum.

8. *Thynnus subinterruptus*.

Male. Length 8 lines. Head and thorax black, and variegated with yellow; abdomen elongate, black, with yellow fasciæ. The clypeus, mandibles, orbits of the eyes, interrupted at their summit, and a forked spot between the antennæ, yellow; the clypeus with an oblique dark line on each side, very faintly indicated. Thorax: the anterior margin raised, a spot at its sides, a narrow interrupted line a little before its posterior margin, the tegulæ, the post-scutellum, and a spot on the scutellum, yellow; the apex of the posterior femora, a line beneath them, and a spot on the intermediate femora beneath, yellow; the apex of the tarsal joints ferruginous; the wings hyaline, the nervures black. Abdomen: the base, the apical segment, and the apical margins of all the segments, black; these marginal bands united by a central longitudinal interrupted ferruginous line, the marginal bands bordered by a narrow ferruginous stain; an oblong ferruginous spot on each segment towards its lateral margins; beneath, the abdomen has the margins of the segments stained with ferruginous, also a central ferruginous line which expands on each segment into an angular shape.

Hab. Champion Bay.

In the British Museum.

9. *Thynnus (Agriomyia) irritans*.

Male. Length $7\frac{1}{2}$ lines. Orange-yellow: the flagellum, and a quadrate shape on the vertex, enclosing the ocelli, black. Thorax: the mesothorax black, with a quadrate yellow spot on the disk, and a large irregular shape beneath the wings, orange-yellow; the wings fuscous, the

nervures black, the marginal cell dark fuscous. Abdomen oblong, rounded at the base, which has a quadrate brown spot, the basal margins of the segments rufous, the apical margins narrowly ferruginous; beneath, the margins are coloured faintly as above; the apical segment with a short black spine. The antennæ not reaching beyond the scutellum.

Hab. Champion Bay.

In the British Museum.

10. *Thynnus (Agriomyia) incensus*.

Male. Length $5\frac{1}{2}$ lines. Black, with the two apical segments of the abdomen red. The anterior margin of the clypeus with a narrow yellow border; the head finely rugose. Thorax as rugose as the head, with the scutellum more coarsely so; the spines at the apex of the tibiæ white; the wings hyaline, the nervures black; the metathorax with thin cinereous pubescence. The abdomen shining; the apical margins of the first four segments have, in the centre, a pair of small quadrate white maculæ, the first pair almost united and tapering to a point laterally, and narrower than the two following pairs; the fourth pair narrow and tapering like the first pair; the style at the apex of the abdomen black.

Hab. Champion Bay.

11. *Thynnus (Agriomyia) baccatus*.

Male. Length 5 lines. Head and thorax black, the abdomen red. The clypeus, mandibles, and a minute spot at the insertion of each antenna, white. The anterior and posterior margins of the prothorax narrowly edged with white; tegulæ and post-scutellum white; the legs ferruginous, with the tarsi dusky; wings hyaline, the nervures black. Abdomen ferruginous, the base and the apical segment black; the apical half of the first segment is divided from the black base by a transverse slightly-interrupted white line; the four following segments have an oblique, ovate, white spot; the sixth segment is toothed on each side beneath, and the anal style is trispinose.

Hab. Champion Bay.

Gen. *ÆLURUS*.*Ælurus volatilis*.

Male. Length $7\frac{1}{4}$ lines. Black, with the legs and abdomen red. Head: the anterior margin of the clypeus, the palpi, mandibles, and a curved line above the insertion of the antennæ, bordering an elevation, reddish-yellow: the cheeks with a minute tooth at the base of the mandibles; the scape ferruginous, dusky above; the cheeks with long cinereous pubescence, that on the mesothorax fulvous. Thorax: the sides, beneath, as well as the metathorax, with a thin cinereous pubescence, the prothorax above, the scutellum and legs, of a brick-red; the anterior margin of the prothorax and the post-scutellum, yellow; wings fulvo-hyaline, with prismatic reflections in certain lights. Abdomen red, black at the extreme base; the sixth segment is also black at its basal margin.

Hab. Adelaide.

In the British Museum.

Gen. *TACHYPTERUS*.*Tachypterus albo-pictus*.

Male. Length 7 lines. Black, variegated with white. Head: the inner orbits of the eyes, a spot on each side of the clypeus, the basal half of the mandibles, and a narrow line behind the eyes, white. Thorax; the posterior margin of the prothorax, a curved line from the insertion of the posterior wings traversing the posterior margin of the scutellum, the post-scutellum, the tubercles, the front of the anterior coxæ, and a spot outside the the posterior pair, white; the spines at the apex of the tibiæ, white; the sides obscurely blue, as well as the metathorax; wings fusco-hyaline, the nervures black. Abdomen: a minute spot on each side of the first segment, an interrupted line on the posterior margin of the second, third, and fourth, white; two minute white spots at the apex.

Hab. Australia.

Fam. SCOLIIDÆ.

Gen. DIMORPHOPTERA, n. g.

The following are the characters of the females; (the males are not known with certainty, though I believe the specimen described as *D. nigripennis* to be a male). The maxillary palpi 6-jointed, the joints of about equal length and thickness, except the apical joint which is more slender; the labial palpi 4-jointed, the joints equal and short. Mandibles stout, curved, and not toothed. Antennæ filiform, short and stout; the scape stout, equal in length to the three basal joints of the flagellum united. Thorax oblong, prothorax transverse, the metathorax truncate; the superior wings with one marginal, and three sub-marginal cells; the marginal extending half-way towards the apex of the wing, from the apex of the cell usually a short abbreviated nervure; the first and second cells of about equal length; the second receiving a recurrent nervure in the middle, the third cell shorter, and receiving the second recurrent nervure towards the base, the apical nervure of the third submarginal is recurved, and much rounded towards the apex of the wing, and issues from the marginal cell towards, not from, its apex. Legs and abdomen as in the genus *Myzine*.

This genus may be considered merely a section of the genus *Myzine*, from which it only differs in the arrangement and neuration of the cells of the wings; in *Myzine*, the marginal cell receives the apical nervure of the third submarginal at its extreme apex, which is not the case in *Dimorphoptera*.

To this genus belong *Myzine signata*, *M. sabulosa*, *M. anthracina*, *M. fuscipennis*, and *M. unicolor*.

1. *Dimorphoptera scoliiformis*.

Female. Length 1 inch. Black: the head shining, the face rugose-punctate; above, sparingly and finely punctured; the mandibles falcate, smooth, shining, and fringed beneath with black hairs. The prothorax and scutellum strongly punctured, the mesothorax with finer scattered punctures, and with two longitudinal impressed lines; the metathorax opaque; the prothorax, scutellum, metathorax and also beneath, with erect black hairs; the

legs very pubescent, the intermediate and posterior tibiæ coarsely rugose outside and spinose, the tarsi very spinose; wings dark fuscous, with reflections of purple and violet. Abdomen: shining, sparingly and finely punctured; the margins beneath, and at the sides, fringed with black pubescence.

Hab. Moreton Bay.

In the British Museum.

2. *Dimorphoptera nigripennis*.

Male. Length $7\frac{1}{2}$ lines. Black: with dark brown wings. Head ovate; slightly shining, and closely punctured; the face and cheeks thinly covered with erect griseous pubescence; the antennæ rather stout, extending to the apex of the scutellum; the mandibles bidentate. Thorax as long as the abdomen, and thinly sprinkled with short griseous pubescence; closely punctured; the tibiæ and tarsi with short griseous pile; wings very dark brown, palest at their apical margins. Abdomen oblong-ovate, smooth and shining, having violet reflections in certain lights.

Hab. Australia.

This is the only example of a supposed male of this genus that I have seen; it is in the National Museum; it differs from the male of *Myzine*, in the short semi-ovate form of the abdomen, and in being destitute of the spine at the apex.

3. *Dimorphoptera morosa*.

Female. Length 10 lines. Black and shining, with dark fuscous wings. Head narrower than the thorax, shining on the vertex, the face coarsely punctured; mandibles very obscurely ferruginous towards the tips; the clypeus, cheeks, and posterior margin of the vertex with cinereous pubescence. Thorax: the prothorax and scutellum coarsely punctured, the former thinly clothed with cinereous pubescence; the mesothorax shining, and with a few scattered punctures; the tibiæ and tarsi strongly spinose, the calcaria at the apex of the tibiæ white; wings dark fuscous. Abdomen shining, and with fine scattered punctures; the apical segment covered with short rigid spines.

Hab. Australia (Melbourne?).

In the British Museum.

4. *Dimorphoptera clypeata*.

Female. Length 8 lines. Black: the abdomen banded with orange. Head and thorax with thin cinereous pubescence; the clypeus, inner margin of the eyes, and a line behind them, yellow; the mandibles fringed beneath with stiff ferruginous hairs; the wings fusco-hyaline, the nervures black, the posterior wings palest; the legs with a glittering white scattered pubescence, the calcaria white; the posterior femora incrassate, compressed beneath into a thin plate, the tibiæ with a row of blunt teeth outside. Abdomen smooth and shining, a few scattered punctures on the fifth segment, and along the apical margins of the other segments; the second, third, and fourth segments with a broad orange band, not extending to the posterior margins, the bands notched in the middle posteriorly, and curved to the sides; the apical segment densely covered with ferruginous hair; beneath, the second and third segments have a broad basal band notched in the middle posteriorly.

Hab. Champion Bay.

5. *Dimorphoptera fastuosa*.

Female. Length 7 lines. Ferruginous: the head, tip of the abdomen, mesothorax, and scutellum, black. The mandibles, anterior margin of the clypeus, and the scape of the antennæ, ferruginous; tips of the mandibles black. Thorax: the prothorax, sides, and legs, with ferruginous pubescence; the spines at the apex of the tibiæ pale testaceous; the intermediate and posterior thickly spinose outside; the wings fulvo-hyaline, the nervures ferruginous. Abdomen punctured, most strongly and closely towards the apex, the apical segment with coarse longitudinal punctures; its tip rufo-piceous, smooth, and shining; the wings extending to two-thirds the length of the abdomen.

Hab. Champion Bay.

In the British Museum.

This species has the wings shorter than the abdomen.

Gen. SCOLIA.

Scolia (Dielis, Saussure) intrudens.

Female. Length 7 lines. Black, with the second and third segments of the abdomen yellow. A transverse yellow interrupted line on the vertex of the head above the ocelli, a narrow yellow line behind the eyes, and a line on the lower part of their inner margin; the mandibles, and antennæ beneath, ferruginous. The mesothorax thinly covered with ferruginous hair; the tibiæ and tarsi ferruginous, the latter most brightly so; the calcaria pale testaceous; the wings fusco-ferruginous; the nervures ferruginous; two submarginal cells, and two recurrent nervures. Abdomen: the apical margin of the first segment narrowly, and the two following segments entirely yellow, on each side of these segments a short narrow ferruginous line, the third segment has also a faint minute ferruginous spot a little within the outer line; the apical segment longitudinally striated; beneath, shining black, the margins of the segments fringed with white hairs.

Hab. Champion Bay.

Fam. POMPILIDÆ.

Gen. POMPILUS.

1. *Pompilus velox.*

Male. Length $5\frac{1}{4}$ lines. Black, with yellow wings. Head: the sides of the clypeus, and of the face and labrum, yellow; tips of the mandibles ferruginous; the head has a thin griseous pubescence, with some longer hairs on the cheeks. Thorax: rounded anteriorly, the posterior margin of the prothorax yellow and angulated; the metathorax truncate: the entire insect has a covering of cinerous pubescence, which is most dense on the underside of the thorax; the anterior tibiæ and tarsi ferruginous; the second, third, and fourth joints of the intermediate tarsi ferruginous, with their tips black; the spines at the apex of the tibiæ pale testaceous; wings

fulvo-hyaline, with their apical margins bordered with fuscous; the nervures ferruginous. Abdomen, smooth and slightly shining, a cream-coloured ovate spot on each side of the third segment at its basal margin.

Hab. Australia.

In the British Museum.

2. *Pompilus lugubris*.

Female. Length $5\frac{1}{4}$ lines. Black, with yellow antennæ. Head and thorax semi-opaque, the abdomen shining. The antennæ inserted at the sides of a bilobate prominence on the face; the front and cheeks with thinly scattered cinereous hairs. Thorax: the sides, and beneath, with scattered cinereous hairs; wings dark fuscous, their apex as well as the externo-medial cell palest, a darker cloud also crosses the anterior wings at the second sub-marginal cell. The abdomen with a short petiole.

Hab. Champion Bay.

In the British Museum.

3. *Pompilus distinctus*.

Male. Length 5 lines. Black: the prothorax, and the second and following segments of the abdomen, reddish-yellow. Head: the antennæ, clypeus, labrum, mandibles, a spot between the antennæ, and a line at the inner and outer orbits of the eyes, orange-yellow. The prothorax above, the apex of the femora, the tibiæ and tarsi, orange-yellow; the wings fulvo-hyaline. Abdomen orange-yellow, with the basal segment black.

Hab. Champion Bay.

In the British Museum.

4. *Pompilus tricolor*.

Male. Length 6 lines. Black: variegated with yellow and ferruginous. Head: antennæ ferruginous, fuscous above; the face, scape in front, and behind the eyes, yellow. Thorax black: the prothorax, a V-shaped mark on the disc of the mesothorax, the tegulæ and an epaulet over them, the scutellum, a line on the post-scutellum with a minute dot at each end of the line, and the apex

of the metathorax, yellow; the anterior and intermediate coxæ in front, with the tibiæ and tarsi, as well as the posterior tibiæ and the base of the first joint of the tarsi, yellow; the anterior and intermediate femora reddish, as well as the base of the posterior femora; the posterior tarsi dusky; wings fulvo-hyaline, their apex fuscous. Abdomen: the first and fourth segments black, the rest yellow; the apical margins of the second and third fusco-ferruginous.

Hab. Adelaide.

In the British Museum.

5. *Pompilus diversus*.

Female. Length $4\frac{1}{2}$ lines. Black: with the head and thorax blood-red. The face with a silvery-white pubescence; the tips of the mandibles and the antennæ black, the scape red beneath; the head a little wider than the thorax. The metathorax rounded behind; the legs obscure fusco-ferruginous, the anterior tibiæ and tarsi brightest; the wings fuscous, palest at their base. Abdomen covered with a silky slate-coloured pile.

Hab. Sydney, or Moreton Bay.

In the British Museum.

6. *Pompilus irritabilis*.

Female. Length $4\frac{3}{4}$ -6 lines. Black: the wings with a yellow fascia; the body covered with a fine silvery silky pile, very bright and glittering in certain lights, and most dense on the face, and body beneath. Thorax: the posterior margin of the prothorax rounded; wings fusco-hyaline, with a broad yellow fascia towards the apex of the anterior wings, enclosing the marginal, two submarginal, and apical half of the third discoidal cell; the fascia does not quite extend to the posterior margin of the wing: the spines at the apex of the tibiæ pale testaceous; the extreme apex of the anterior tibiæ and joints of the tarsi, as well as the apex of the intermediate tibiæ, ferruginous. Abdomen rounded at the base.

The male closely resembles the female, but has the anterior tibiæ and tarsi, as well as the antennæ, ferruginous; the posterior tibiæ with a pale spot at their base.

Hab. Australia.

In the British Museum.

7. *Pompilus infandus*.

Male. Length $8\frac{1}{4}$ lines. Black, with the metathorax and base of the abdomen ferruginous. Head: narrower than the thorax; the antennæ, palpi, and tips of the mandibles, ferruginous; the face covered with silvery pile. Thorax: the posterior margin of the prothorax angulated; the wings fulvo-hyaline, the nervures ferruginous; the metathorax, which is ferruginous above, is tuberculate on each side; the legs ferruginous. Abdomen sub-petiolate, the petiole black; the first and second segments ferruginous, except the posterior margin of the second, which is black, the following segments also black; beneath, coloured the same as above.

Hab. Australia.

In the British Museum.

8. *Pompilus vespoides*.

Female. Length $7\frac{1}{2}$ -10 lines. Black: the head, legs, and abdomen except its base, ferruginous. Head a little wider than the thorax, a black spot on the front enclosing the ocelli; antennæ of the same colour as the head; tips of the mandibles black. Thorax: rounded anteriorly and posteriorly; pilose, with, in certain lights, a violet lustre; wings flavo-hyaline, their apical margins with a narrow fuscous border; the coxæ, trochanters and base of the femora, black. Abdomen: the basal segment black; the apical margins of the second, third, and fourth segments slightly fuscous, forming in the middle of each segment an ill-defined angular shape; beneath, black, except at the extreme apex.

Hab. South Australia (Moreton Bay?).

In the British Museum.

9. *Pompilus melancholicus*.

Female. Length 5 lines. Black, and ornamented with cinereous spots and bands. Head: rather wider than the thorax, the face and cheeks covered with cinereous pile; tips of the mandibles ferruginous; the clypeus smooth and shining at its anterior margin. Thorax: the prothorax in front, its posterior margin, the post-scutellum, and two oblique pubescent spots on the metathorax, cinereous; the coxæ and femora beneath,

cinereous; the tibiæ and tarsi cinereous above; wings fuscous, with their apical margins darkest. Abdomen smooth and shining, with cinereous fasciæ on the apical margins of the segments.

The male resembles the female.

Hab. Champion Bay.

In the British Museum.

Gen. PRIOCNEMIS.

1. *Priocnemis affectata*.

Female. Length 10 lines. Black, with the two basal segments of the abdomen ferruginous, wings maculated. Head as wide as the thorax, the face and cheeks with a fine griseous pile, the head thinly sprinkled with fuscous hairs; the antennæ bright ferruginous; the labrum, mandibles, and palpi, dark ferruginous. Thorax: the posterior margin of the prothorax arched; the sides parallel; the metathorax, the coxæ, and sides, covered with a fine glossy pile, reflecting golden tints in different lights; the truncation of the metathorax smooth, not shining, the upper surface transversely grooved; wings fulvo-hyaline, their apical margins with a narrow fuscous border, and also a quadrate fuscous spot at the apex of the third discoidal cell, extending upwards into the corners of the second and third sub-marginals; legs bright ferruginous, with black coxæ. Abdomen: the extreme base, also the base of the second segment in the middle, its apical margin broadly, and the following segments entirely black; the apical segment with bright ferruginous hairs.

Hab. South Australia (Moreton Bay?).

In the British Museum.

2. *Priocnemis defensor*.

Female. Length 7-10 lines. Black, with ferruginous wings. Head narrower than the thorax, antennæ incrassate; the body pilose, in some lights having a dull violet lustre. Thorax: truncate posteriorly, slightly rounded anteriorly; the posterior margin of the prothorax curved; the sides parallel; the wings ferruginous,

their bases and apical margins narrowly dark fuscous ; the nervures ferruginous, black at the extreme base of the anterior wings ; the metathorax impunctate, and with an impressed line above, in the middle.

Hab. South Australia.

In the British Museum.

3. *Priocnemis Polydorus*.

Female. Length 11 lines. Black : the wings fuscous, fasciated with yellow. Head rather narrower than the thorax ; the face below the insertion of the antennæ covered with griseous pile, above the antennæ with short fuscous pubescence, the vertex not pilose ; the cheeks with a thin, long, griseous pubescence ; the antennæ with a fine fuscous pile. Thorax : oblong, the sides parallel, the posterior margin of the prothorax rounded ; opaque, the sides beneath, as well as the legs, with a shining griseous pile, intermixed with fine long griseous pubescence ; the metathorax truncate ; above, with a central impressed line, the truncation transversely finely rugose ; wings dark fuscous, the anterior pair with a broad yellow fascia, extending from the base to the apex of the marginal cell, and narrowing posteriorly. Abdomen smooth and shining, the apical segment opaque and punctured ; the basal segment with a patch of silvery-white hair on its margin laterally, sometimes also on the second segment.

Hab. Australia (Moreton Bay?).

In the British Museum.

4. *Priocnemis ephippiata*.

Female. Length 8 lines. Black, with the mesothorax and scutellum red. Head : the flagellum orange-yellow ; the tips of the mandibles ferruginous ; the clypeus and face, as high as the insertion of the antennæ, with a thin silvery-white pile. Thorax : the mesothorax, scutellum, and post-scutellum, blood-red ; the wings fuscous ; the spines at the apex of the tibiæ pale testaceous. Abdomen shining, the apical margins of the segments narrowly fringed with silvery-white pubescence. The insect has a silvery pile beneath.

Hab. Adelaide.

In the British Museum.

Fam. SPHEGIDÆ.

Gen. AMMOPHILA.

1. *Ammophila impatiens*.

Female. Length 1 inch. Head and thorax black, legs and petiole of the abdomen ferruginous. Head: the scape ferruginous in front, the face covered with silvery pile; thinly sprinkled with fuscous hairs. Thorax: pro- and meso-thorax coarsely striated transversely, the metathorax obliquely so; the femora, tibiæ, and basal half of the first joint of the tarsi, ferruginous, the other joints black; wings fulvo-hyaline, their nervures ferruginous, tips of the wings clouded. Abdomen: the petiole elongate, and, as well as the first segment, bright ferruginous, a black spot in the middle of the petiole; the apical joints of the abdomen blue-black.

Hab. Champion Bay.

In the British Museum.

2. *Ammophila ardens*.

Female. Length 13 lines. Black: the legs and petiole and first segment of the abdomen ferruginous. Head: the antennæ, palpi, and basal half of the mandibles ferruginous, the flagellum fuscous towards the apex; the face with golden pile. Thorax: the prothorax and metathorax transversely striated; the posterior portion of the mesothorax in the middle, the scutellum and post-scutellum longitudinally striated; the sides and beneath rugose; the legs bright ferruginous; the tarsi densely spinose, the spines black; the anterior and intermediate coxæ behind, and the posterior pair in front, black; wings fulvo-hyaline, the anterior pair clouded at their apex. Abdomen; the petiole and first segment bright ferruginous, the former with a black spot in the middle; the following segments blue-black; the petiole elongate.

Hab. Swan River.

In the British Museum.

Gen. SPHEX.

Sphex argentifrons.

Female. Length $9\frac{1}{2}$ lines. Head and thorax black, the abdomen red. Head: the face covered with bright silvery pile, interspersed with long thin white pubescence, which also thinly covers the whole head; the mandibles ferruginous. The thorax clothed with pale glittering pubescence, which is most dense on the metathorax, and most sparing on the mesothorax above; the legs bright ferruginous, with the coxæ, and apical half of the posterior tibiæ black; the wings fulvo-hyaline, their apical margins faintly clouded, the nervures ferruginous. The abdomen bright ferruginous.

Hab. Champion Bay.

In the British Museum.

Fam. LARRIDÆ.

Gen. PISON.

Pison nitidus.

Female. Length 6 lines. Black: the mesothorax and abdomen shining. Head opaque black, the face with a silvery-white pubescence. Thorax: beneath, the sides and the metathorax with a thin cinereous pubescence, the legs with a glittering cinereous pile; the mesothorax finely punctured; the metathorax with a central deeply impressed channel; above, with oblique elongate punctures, the truncation strongly punctured, the punctures elongate and transverse; the wings dark fuscous, sub-hyaline at their base. Abdomen delicately punctured, the apical margins of the segments with silvery-white fasciæ; beneath, smooth and shining.

Hab. Champion Bay.

Fam. NYSSONIDÆ.

Gen. GORYTES.

Gorytes ornatus.

Female. Length 5 lines. Black: variegated with yellow and red. Head: the clypeus, scape, and mandibles yellow; antennæ much thickened towards the apex, black

above and ferruginous beneath; the eyes ochraceous. Thorax: the collar, tubercles, a line beneath the wings which has a quadrate notch in the middle, a line on the sides of the mesothorax continued over the tegulæ, the scutellum and post-scutellum, yellow; the anterior and intermediate legs, the tarsi and posterior tibiæ outside, yellow; the intermediate coxæ, trochanters, the anterior and intermediate femora above, the posterior coxæ, trochanters, and femora, ferruginous; the posterior tibiæ and basal joint of the tarsi black; the tarsal claws ferruginous, the pulvillus between them black; the wings hyaline. Abdomen: the second segment ferruginous, a broad yellow band on the apical margin of the basal segment; a large yellow subovate macula on each side of the second segment, from which a short narrow line, terminating in a point, runs inwards; the apical margins of the following segments bordered with yellow.

Hab. Champion Bay.

Fam. CRABRONIDÆ.

Gen. CRABRO.

1. *Crabro neglectus*.

Male. Length 4 lines. Black; with orange bands on the abdomen. Head wider than the thorax; the clypeus silvery; the scape yellow. Thorax: an interrupted orange line on the collar: the anterior legs, and the intermediate tibiæ and tarsi, ferruginous; the anterior tibiæ white at their apex; wings fusco-hyaline, the nervures black; the metathorax coarsely rugose. Abdomen: smooth and shining, an interrupted orange line on the second segment near the basal margin, and an entire fascia at the basal margin of the fourth segment: the apical margins of the following segments narrowly rufotestaceous.

Hab. South Australia.

In the British Museum.

2. *Crabro nigro-maculatus*.

Female. Length $3\frac{1}{2}$ lines. Black: the abdomen ferruginous, with a large black macula. Head as wide as the thorax; the ocelli in a triangle, the scape, and three

or four joints of the flagellum, ferruginous; a yellow line on the mandibles at their base. Thorax: the knees, tibiæ, and tarsi ferruginous; the basal joint of the anterior tarsi black; wings hyaline, the nervures fuscous. Abdomen: ferruginous; a large black macula above, divided across the middle at the apical margin of the second segment.

Hab. Moreton Bay.

In the British Museum.

3. *Crabro tridentatus*.

Female. Length 7 lines. Black: the abdomen with orange bands. Head: quadrate, wider than the thorax; the clypeus and cheeks with a silvery pile, the former with three teeth at its anterior margin, one central, the others at the lateral angles; the scape yellow; the ocelli in a curve. Thorax: an interrupted orange line on the collar; the tibiæ, tarsi, and femora above, ferruginous; wings sub-hyaline, the nervures fuscous. Abdomen: an orange fascia at the basal margin of the second segment, the fourth and following segments entirely orange.

Hab. Moreton Bay.

In the British Museum.

Fam. MASARIDÆ.

Gen. PARAGIA.

1. *Paragia vespiformis*.

Smith, Trans. Ent. Soc. 3rd Ser. ii. 393, ♀.

Male. Length 7 lines. Opaque black: the clypeus, mandibles, scape of the antennæ in front, and a line on each side of the face along the inner margin of the eyes but not extending above the insertion of the antennæ, yellow. A narrow line on the anterior margin of the prothorax, the inner margin of the tegulæ, and the posterior margin of the scutellum, yellow; the coxæ, femora, intermediate and posterior tibiæ, yellow beneath; a narrow yellow line beneath the basal joint of the intermediate and posterior tarsi; the wings sub-hyaline, the nervures

black. The basal segment of the abdomen concave in front, elevated on each side; the elevations acutely margined laterally, yellow above, and at the sides, outwardly; the five following segments with a yellow band on their apical margins, slightly interrupted in the middle; the apical segment black. Beneath, yellow; a blunt yellow tooth, or spine, projecting from the middle of the second segment, and slightly curved towards the apex of the abdomen; the basal segment black.

The female of this species was described from a specimen received from the Swan River; it is in the National Collection. Both sexes were sent by Mr. Du Boulay in a small collection, presented to me by that gentleman; they are from Champion Bay.

2. *Paragia morosa*.

Female. Length 8 lines. Reddish-yellow, not shining; the ocelli and teeth of the mandibles black. The mesothorax with a central lanceolate patch, and the suture at the base of the scutellum, black; the pectus black; the anterior wings ferruginous, becoming subhyaline at their apical margins; the marginal cell occupied by a black macula; the metathorax produced laterally above, into an acute angle. Abdomen; the apical margins of the second and third segments very narrowly bordered with black, the basal margin of the third slightly so, but becoming laterally more broadly so; the third segment is also black at the base laterally; the third and fourth segments are black beneath, the third having the apical margin yellow, most broadly so in the middle and at the sides.

Hab. Champion Bay.

3. *Paragia concinna*.

Female. Length 5 lines. Black and orange. The head black, with the base of the mandibles, labrum, clypeus, a bell-shaped spot between the antennæ, the inner margins of the eyes, and a broad streak behind them, orange-red; the scape of the antennæ ferruginous. The thorax black, with the prothorax above, the tegulæ and a narrow epaulet over them, an elongate spot on

the mesothorax behind, and a minute one on each side of it, the scutellum, sides of the metathorax, and the legs, orange; the anterior coxæ black; wings sub-hyaline, with a fuscous cloud along their anterior margins, which becomes black in the marginal cell; the nervures ferruginous towards the base of the wings, black beyond. Abdomen orange; the second segment, and the base of the fourth, black; the base of the second segment orange, interrupted in the middle. Beneath, the second, fourth, and fifth segments black.

Hab. Champion Bay.

4. *Paragia nasuta*.

Female. Length $6\frac{1}{2}$ lines. Black: the face ornamented with yellow, and the body with orange-red markings. Head: the anterior margin of the clypeus produced; a transverse spot at its base, and an ovate one above, between the antennæ, yellow; a yellow spot behind the eyes; the mandibles ferruginous at their apex, and sub-dentate. Thorax: the prothorax above, a sub-quadrate spot beneath the wings, the tegulæ and a line on the mesothorax at their margin, the scutellum and an abbreviated line before it, orange-red; the metathorax with a blunt orange-red tooth on each side, and a yellow line on the post-scutellum; the tibiæ, tarsi and femora, red, the latter more or less black beneath; the wings hyaline, the anterior margin of the superior pair fuscous. Abdomen: a broad orange-red band on the apical margins of the first and third segments; the apical segment of a testaceous red, except at its extreme base.

The male is rather smaller, and has the clypeus, a spot above it, and a line on the scape in front, white; of two examples, one has an abbreviated white line on the inner margins of the eyes; the mandibles white outside; the central red line before the scutellum obsolete; in other respects resembling the female.

This species closely resembles *P. deceptor*, but that insect has the mandibles furnished with three prominent teeth, and the basal segment of the abdomen is much narrower.

Hab. Champion Bay.

In the British Museum.

Fam. ANDRENIDÆ.

Gen. LAMPROCOLLETES.

Lamprocolletes rubellus.

Male. Length $5\frac{1}{4}$ lines. Head and thorax black, the abdomen ferruginous. The face densely covered with golden yellow pubescence, that on the cheeks paler; the mandibles and antennæ ferruginous, the latter dusky above. Thorax densely pubescent, ochraceous above, much paler beneath; wings fulvo-hyaline, the nervures ferruginous; legs pale ferruginous. Abdomen ferruginous, the basal segment thinly covered with pale pubescence, margins of the segments testaceous, and fringed with whitish pubescence.

Hab. West Australia.

Gen. CESTROPSIS, n. g.

Head transverse, narrower than the thorax; ocelli in a curve on the vertex; the antennæ clavate, with the scape short and stout, one-third shorter than the third joint, which is much attenuated, the following joints filiform. Mentum elongate, labium short and lanceolate, about the same length as the paraglossæ, which are somewhat pear-shaped, and pubescent as well as the labium. Maxillary palpi six-jointed, the basal joint being longer and stouter than the others, each in succession being shorter and more slender. Thorax ovate, the wings with one elongate narrow marginal cell, rounded at its apex; three submarginal cells, the first one-third longer than the second, the second narrowed towards the marginal, the third rather shorter than the second, and narrowed towards the marginal; the recurrent nervures received in the middle of the second and third submarginal cells. Abdomen sub-conical. (Male.)

1. *Cestropsis pubescens.*

Male. Length 6-7 lines. Black: densely clothed with ochraceous pubescence; in some examples the pubescence is darker, being a dirty yellow. Antennæ pale ferruginous, fuscous, or black above, except the two or three apical segments; tips of the mandibles rufo-piceous.

Thorax densely pubescent; legs pale ferruginous, the intermediate coxæ and femora behind, as well as the posterior femora, dark fuscous or black, the tips of the latter ferruginous outside; wings hyaline, the nervures ferruginous, the costal black. Abdomen with a nigro-æneous hue, all the segments densely fringed with pubescence; beneath, thinly pubescent.

Hab. Champion Bay, and South Australia.

In the British Museum.

Gen. STENOTRITUS.

Stenotritus smaragdinus.

Female. Length $8\frac{1}{2}$ lines. Bright green, finely shagreened, not shining; the ocelli black, placed forwards in a curve, an abbreviated carina in front of the anterior one; a dark space on each side of the ocelli between them and the eyes; the clypeus with purple reflections; antennæ black. The metathorax, the thorax beneath and at the sides, with white pubescence; the legs have a pale pubescence, that on the intermediate and posterior tibiæ and tarsi short and dense. The wings hyaline. The abdomen has a thick dark fuscous fimbria at the apex; on the second segment on each side at the basal margin is a dark fuscous impressed spot; beneath, the apical margins of the segments are fringed with pale pubescence, that on the apical segment being dark fuscous.

Hab. Champion Bay.

In the British Museum.

The insect from which the generic characters were drawn, (Cat. Hymenop. p. 119) was not in perfect preservation; the tongue was wanting; but the remarkable pectinate spurs on the intermediate and posterior tibiæ, in conjunction with other peculiarities, were deemed sufficient characters whereby it might be recognized; the second species now described is also imperfect, the tongue, part of the antennæ, and one of the anterior legs are wanting; but in every particular in which I have the means of comparing this species with the type *S. elegans*, they agree; both are from Australia.

Fam. APIDÆ.

Gen. LITHURGUS.

Lithurgus cognatus.

Female. Length $7\frac{1}{2}$ lines. Black, with ferruginous pubescence on the apical segment of the abdomen. Head rather wider than the thorax, closely punctured; the face covered with white pubescence, that on the cheeks is of the same colour, but longer, and more sparing; the face with a transverse bituberculate elevation at the base of the clypeus; an elevated ridge on each side of the central tubercle, curving down to the base of the mandibles; the mandibles short, stout, and bidentate; the flagellum of the antennæ obscurely fulvous beneath; the labrum of a broad lanceolate form, and fringed with ferruginous hair. Thorax: the pubescence pale cinereous, that on the femora and tibiæ is of the same colour, that on the tarsi dark brown; on the basal joint of the posterior tarsi within, it is tinged with ferruginous; the posterior tibiæ outside are roughened with a multitude of short stout teeth or spines; wings hyaline, their nervures black. Abdomen: the apical margins of the segments narrowly fringed with pale ochraceous pubescence; the apical segment as well as the abdomen beneath clothed with bright ferruginous.

Male. Similarly coloured to the female; the tarsi elongate, the posterior coxæ and femora incrassate; the basal joint of the posterior tarsi has, in the middle within, a tuberculate blunt flattened process; the tibiæ are very stout, and slightly curved.

Hab. Champion Bay.

In the British Museum.

Although both sexes are considerably larger than *Lithurgus rubricatus*, described in my Catalogue of *Hymenoptera*, from North Australia, I am inclined to believe this may be a finely developed form of the same species; the tubercle on the face of the female, which is rudimentary in *L. rubricatus*, is the most marked distinctive character.

Gen. MEGACHILE.

1. *Megachile monstrosa*.

Female. Length 10 lines. Black, with fuscous wings, sub-hyaline at their base. Head: large, quadrate, as wide as the thorax; mandibles very stout, with three teeth at their apex, which is obliquely truncate; the clypeus elevated on each side, at the base, into a stout tubercle or tooth, acute at its apex; the cheeks armed with a stout acute bent tooth; the head rugose behind the eyes. Thorax rugose; the wings dark fuscous, sub-hyaline at their basal and apical margins; beneath, the sides and the metathorax clothed with griseous pubescence; the legs have a stout griseous pile; the basal joint of the tarsi with a short, dense, fulvous pubescence. The abdomen clothed beneath with dense, pale, glittering fulvous pubescence; the basal segment deeply concave in front. and with a patch of pale pubescence on each side above.

Hab. Champion Bay.

In the British Museum.

2. *Megachile fabricator*.

Female. Length $6\frac{1}{2}$ lines. Black, wings with their apical half dark fuscous, basal segment of the abdomen covered with white pubescence. Head and thorax opaque, the abdomen slightly shining; the face, as high as the ocelli, with pale ochraceous pubescence, that on the clypeus black; the mandibles with two stout teeth at their apex, and a third, more slender and acute within. Thorax: the legs with short, pale, glittering pubescence, that on the posterior and intermediate basal joint of the tarsi black within; the same joint of the anterior tarsi has it ferruginous. Abdomen: the basal segment, the basal margin of the second, and that of the third segment laterally, with white pubescence; beneath, clothed with bright white pubescence, that on the apical segment black, with a few white hairs in the middle.

Male. Length 5 lines. Closely resembles the female; the mandibles with a single tooth at the apex; the basal joint of the anterior tarsi broadly expanded into a thin semi-transparent plate; all the joints fringed behind with long pale pubescence, towards the base of the first joint it is fuscous; the apical segment rounded at its margin, with a small acute tooth in the middle.

Hab. Champion Bay.

In the British Museum.

3. *Megachile fumipennis*.

Female. Length 7 lines. Black: the basal segment of the abdomen clothed with white pubescence, the wings dark fuscous. Head closely and finely punctured, the vertex with larger punctures interspersed; the face thickly covered with white pubescence; the mandibles stout, having elongate punctures, and a single tooth at the apex. Thorax: the mesothorax roughened with confluent punctures; the prothorax, the sides, and the metathorax with white pubescence; the legs have a short black pubescence; the tarsal claws ferruginous. Abdomen clothed beneath with black pubescence.

Hab. Champion Bay.

In the British Museum.

4. *Megachile sexmaculata*.

Female. Length $5\frac{1}{2}$ lines. Black: the face with golden yellow pubescence, the abdomen with six white maculæ, the apex ferruginous. The mandibles with longitudinal strigose punctures, a single tooth at the apex, and fringed beneath with ferruginous hairs; the cheeks with cinereous pubescence. The thorax with cinereous pubescence, as well as the legs; the basal joints of the tarsi densely clothed above with short cinereous pubescence, but with pale fulvous beneath; wings fusco-hyaline, the nervures black. Abdomen: a patch of snow-white pubescence on each side of the three basal segments; a large ovate ferruginous spot on the apex, occupying the apical and a large portion of the fifth segment; the pollen brush beneath is silvery white.

Hab. Champion Bay.

In the British Museum.

5. *Megachile imitata*.

Female. Length 6 lines. Black, and closely resembling *M. argentata*. The face clothed with pale yellow pubescence, that on the cheeks silvery. The thorax with pale yellow pubescence above, sparing on the disc; on the sides and beneath it is whitish, as is also the thin short pubescence on the legs above, on the tarsi beneath it is fulvous; the wings sub-hyaline, the nervures black.

Abdomen: the apical margins of the segments with fasciæ of pale yellow pubescence; beneath, clothed with silvery white pubescence.

Hab. Champion Bay.

In the British Museum.

6. *Megachile nasuta*.

Female. Length 6 lines. Black: with the tip of the abdomen red. Head quadrate, closely and evenly punctured; the clypeus elevated, forming in front a smooth shining hollow space, coarsely punctured above, the margin irregular, sub-dentate; the face with cinereous pubescence. The pubescence on the sides of the thorax and on the legs, cinereous, nearly white, that on the basal joint of the tarsi within, pale fulvous; the claws ferruginous. Abdomen: the basal segment covered with white pubescence, the apical one has a fulvous patch above; beneath, clothed with pale fulvous pubescence.

Hab. Champion Bay.

In the British Museum.

Gen. CROCISA.

Crocisa albo-maculata.

Female. Length 6 lines. Black, variegated with snow white spots. Head clothed with white pubescence, a snow-white spot at the base of the mandibles. Thorax: the sides clothed with white pubescence; in the white is a small ovate black spot, and a transverse black line; the mesothorax with a white ovate spot on each side in front, an oblong line between, another in front of the tegulæ, and four ovate ones on the disc; the scutellum deeply notched, a tuft of white hair in the notch; wings fuscous, the posterior wings and base of the anterior pair subhyaline; also two or three small hyaline spots just beyond the enclosed cells of the front wings; the tibiæ and basal joint of the tarsi white outside. Abdomen: a white spot on each side at the basal margin, and two united spots on each side of the first segment; the second segment has a broad interrupted white fascia on its apical margin, which also runs up the sides laterally; the third and fourth segments have two ovate spots on each side, and the fifth segment a simple spot; the segments have a spot on each side beneath.

Hab. Champion Bay.